

**THE PROMISE AND CHALLENGES OF ALGAL BIOFUELS  
USING NON-TRADITIONAL WATER RESOURCES**

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Domestically produced biofuels have the potential to reduce U.S. reliance on imported petroleum, contribute to rural economic development, and provide environmental benefits through reduced greenhouse gas emissions. However, depending on the feedstock used for producing biofuels, and the approaches taken to create the feedstocks and generate the biofuels, the overall benefits and impacts can be less than desired. Concerns have emerged in recent years over the long-term pressures of expanded biofuels production on fresh water supplies and the economic consequences associated with the linkage of biofuels with other food and feed markets. Algae has been recognized for many years for its potential as a feedstock for biofuels and other valuable co-products. The advantages of algae include rapid growth and high yield potential using non-fresh waters, the productive application of CO<sub>2</sub> waste streams as an algae nutrient, and not requiring the use of high-quality arable agricultural land. However, affordable and scaleable algae-based biofuel production faces numerous technical and economic challenges, and among them are the issues associated with water use, especially in the arid regions of the Southwest and West. This presentation will provide an overview of the promise and challenges for algae-based biofuels from the perspective of the Energy-Water Nexus.